09-27-00 A

Docket No. Glanzman - Tent

Commissioner of Patents and Trademarks
Washington, D.C. 20231

NEW APPLICATION TRANSMITTAL

Transmitted herewith for filing is the patent application of

Inventor(s): DAVID GLANZMAN

For (title): METHOD FOR LEAK-PROOFING SEAMS OF SYNTHETIC FIBER FABRIC ITEMS

1. Type of Application

This new application is for a(n):

[X] Original
[ ] Design
[ ] Plant
[ ] Provisional Application
[ ] Divisional
[ ] Continuation
[ ] Continuation-in-part (CIP)
[ ] Conversion of Provisional Application (35 U.S.C. 119[e])

2. Benefit of Prior U.S. Application(s) (35 USC §120)

[ ] The new application being transmitted claims the benefit of prior U.S. application(s) and enclosed are ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

3. Papers Enclosed Which Are Required For Filing Date Under 37 CFR §1.53(b) (Regular) or 37 CFR §1.153 (Design) Application

__8__ Pages of specifications
__1__ Pages of claims
__1__ Pages of abstract
__0__ Sheets of drawing
[ ] formal
[X] informal

4. Additional papers enclosed

[ ] Preliminary Amendment
[ ] Information Disclosure Statement
[ ] Form PTO-1449
[ ] Citations
[ ] Declaration of Biological Deposit
[ ] Authorization of Attorney(s) to Accept and Follow Instructions from Representative
[ ] Special Comments
[ ] Other

5. Declaration or oath

[ ] Enclosed, executed by
- [ ] inventor(s).
- [ ] legal representative of inventor(s). 37 CFR §1.42 OR §1.43
- [ ] joint inventor or person showing a proprietary interest on behalf of inventor who refused to sign or cannot be reached.
  - [ ] this is the petition required by 37 CFR §1.47 and the statement required by 37 CFR §1.47 is also attached.

[X] Not Enclosed.
- [ ] Application is made by a person authorized under 37 CFR §1.41(c) on behalf of all the above named inventor(s). The declaration or oath, along with the surcharge required by 37 CFR §1.16(e) can be filed subsequently.
  - [ ] Showing that the filing is authorized.

6. Inventorship Statement

The inventorship for all the claims in this application are:

[X] The same

[ ] Not the same. An explanation, including the ownership of the various claims at the time the last claimed invention was made,
[ ] is submitted. [ ] will be submitted.

7. Language

[X] English

[ ] non-English
- [ ] the attached translation is a verified translation. 37 CFR 1.52(d).

8. Assignment

[ ] An assignment of the invention to
[ ] is attached. [ ] will follow.

9. Certified Copy

Certified copy(ies) of application(s)

(Country)	(Appln. No.)	(Filed)
(Country)	(Appln. No.)	(Filed)

from which priority is claimed:

[ ] is(are) attached. [ ] will follow.

10. Fee Calculation (37 CFR §1.16)

A. [X] **Regular application**

CLAIMS AS FILED

	Number filed	Number Extra	Rate	Total
Basic Fee				$790.00
Total Claims	1 - 20 =	FIELD(11)	x $ 22.00	$0
Independent Claims (37 CFR 1.16(b))	1 - 3 = 0		x $ 82.00	$0
Multiple dependent claim(s), if any (37 CFR 1.16(d))	0		x $270.00	$0

[ ] Amendment canceling extra claims enclosed.
[ ] Amendment deleting multiple dependencies enclosed.
[ ] Fee for extra claims is not being paid at this time.

Filing Fee Calculation $ 790.00

B. [ ] **Design application**
($330.00--37 CFR §1.16(f))

Filing Fee Calculation $_____

C. [ ] **Plant application**
($540.00--37 CFR §1.16(g))

Filing Fee Calculation $_____

11. Small Entity Statement(s)

[ ] Verified Statement(s) that this is a filing by a small entity under 37 CFR §1.9 and §1.27 is(are) attached.

Filing Fee Calculation (50% of **A**, **B** or **C** above) $395.00

12. Request for International-Type Search (37 CFR §1.104(d))

[ ] Please prepare an international-type search report for this application at the time when national examination on the merits takes place.

13. Fee Payment Being Made At This Time

[x] Not Enclosed
[ ] No filing fee is to be paid at this time.
[ ] Enclosed

[ ]	basic filing fee	$ 395.00
[ ]	recording assignment ($40.00; 37 CFR §1.21(h))	
[ ]	petition fee for filing by other than all the inventors or person on behalf of the inventor where inventor refused to sign or cannot be reached. ($130.00; CFR §1.47 and §1.17(h))	$
[ ]	for processing an application with a specification in a non-English language. ($130.00; 37 CFR §1.52(d) and §1.17(k)	$
[ ]	processing and retention fee ($130.00; 37 CFR §1.53(d) and §1.21(l))	$
[ ]	fee for international-type search report ($40.00; 37 CFR §1.21(e)	$
	Total fees enclosed	$

14. Method of Payment of Fees

[ ] Check in amount of $_____
[ ] Charge Account No. 50-0894 in the amount of $ 395. A duplicate of this transmittal is attached.

15. Authorization to Charge Additional Fees

[ ] The Commissioner is hereby authorized to charge the following additional fees by this paper during the entire pendency of this application to Account No. 07-1892.

- [ ] 37 CFR §1.16 (a), (f) or (g) (filing fees)
- [ ] 37 CFR §1.16 (b), (c) and (d) (presentation of extra claims)
- [ ] 37 CFR §1.16(e) (surcharge for filing the basic filing fee and/or declaration on a date later than the filing date of the application)
- [ ] 37 CFR §1.17 (application processing fees)
- [ ] 37 CFR §1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 CFR §1.311(b))

16. Instructions As To Overpayment

[ ] credit Account No. 50-0894
[X] refund

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[ ] **Incorporation by reference of added pages**

[ ] Plus Added Pages For New Application Transmittal Where Benefit of Prior U.S. Application(s) Claimed

Number of pages added _____

[ ] Plus Added Pages for Papers Referred To In Items 5, 11 & 13 Above

Number of pages added _____ (incl. check)

[ ] **Statement Where No Further Pages Added**

[ ] This transmittal ends with this page.

CERTIFICATION UNDER 37 CFR 1.10

Express Mail Label Number: EL356275375US

I hereby certify that this New Application Transmittal and the documents referred to as enclosed therein are being deposited with the United States Postal Service on the date indicated below in an envelope as "Express Mail Post Office to Addressee" addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

9/25/00
Date

David G. Henry

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

TITLE: METHOD FOR LEAK-PROOFING SEAMS OF SYNTHETIC FIBER FABRIC ITEMS

INVENTOR: DAVID GLANZMAN

BACKGROUND OF THE INVENTION

1. Field of The Invention

The present invention relates to methods for repairing tents, tarps, and similar fabric weather barrier items.

2. Background Information

Conventional tents, tarps, and related fabric weather barrier items, once made predominately of canvas, are now predominately made of fabrics made from synthetic fibers, such as polyester.

A very serious problem encountered by tents users (the military in particular) relates to leaks along and sewn seams. Unlike natural fibers from which conventional tents were once made, synthetic fibers do not tend to swell when exposed to moisture and thereby "seal" the needle holes of seams. Substantial experimentation and research has gone into trying to solve this problem, but thus far without promising or economically viable results. The same problems are true with respect to tarps, vehicle tops, temporary roofs for field dwellings, etc. as are made from like, synthetic fiber fabrics, but further discussion here with usually, simply refer to "tents" as a collective reference to all such items.

It would well serve users of tents and similar weather barrier fabric items, mass users in particular (the military being the prime example) to provide some methodology by which tents made from synthetic fiber fabric can be made not to leak. Better still than making new tents that do not leak, is providing a methodology by which existing tents may be economically and effectively prepared to thereby avoiding the very substantial expense of completely replacing existing tent inventories, again, particularly for mass users of tents.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a new and unobvious method for repairing leaky tents.

It is another object of the present invention to provide an improved method for repairing seams of synthetic fiber fabric tents to prevent leaking.

In satisfaction of these and related objectives, Applicant's present invention provides a novel and unobvious method for repairing (or initially completing at manufacture) items made from synthetic fiber fabrics and which, therefore, are not water impervious along sewn seams. Modern tents, tarps, and some vehicle tops are items which are made from synthetic fiber fabrics and, therefore, are prone to leakage along seams.

The present method has been tested and proven to provide effective, highly economical repairs of existing tents, and to thereby provide an avenue for avoiding the substantial expense of replacing existing inventories of tents, tarps, etc. The method involves the use of existing, off-the-shelf equipment and supplies, and is easily mastered by persons who are only briefly trained.

The present method solves a long-felt, but unsatisfied need which is evidenced by the enthusiastic endorsement of military officials in wanting to move forward with governmental adopting of the herein described process. This, in turn, arises, not only from the effectiveness of the process, but its cost savings over the only present alternative to dealing with leaking tents -- to replace them. The military in particular has repeatedly investigated the problem with leaking tents in particular, and, until the present method was presented for consideration, was without any viable suggestion for dealing with existing inventories.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present method for "leak-proofing" seams of tents, tarps, and similar items as are constitute sewn pieces of synthetic fiber fabrics is very straight forward and easily undertaker once explained.

The method involves heat sealing strips of vinyl "tape" (truly, just strips of sheet vinyl material) along seams of the to-be-repaired tent, tarp, etc. This process is thought only to be applicable to items made of synthetic fiber fabrics (polyester, nylon, etc.) and not to natural fiber fabrics (cotton, wool, etc.).

While the process might be modified in certain ways and still be within the true scope of the present invention, the preferred mode of practicing the present method involves the use of an automatic hot air welder to effect the thermal bonding (melting material to material) as is elemental to the present process.

An automatic hot air welder in this context is a machine which produces a super-heated jet of air which impinges on a surface that underlies the welder, and the welder moves under its own power along a trajectory governed by the user. When one practices the present invention, one will align the automatic hot air welder such that the air jet will follow the path a given to-be-repaired seam with the vinyl tape overlying the seam. As the welder travels along the path of the seam, the vinyl tape is thermally welded to the underlying fabric of the tent, tarp, etc. The result is a virtually water-impervious seam, yet one which is still suitably pliable for later folding, etc.

Hot air welders have nozzles through which the heated air is ejected onto the to-be-welded surfaces. Whatever machine is used, a nozzle is preferred which has an elongate orifice the long axis of which is substantially equal to the width of the vinyl tape which will be used in the process. During use, the nozzle will be positioned whereby the nozzle's long axis is perpendicular to the path of the welder's movement, that is, perpendicular to the to-be-repaired seams and of the length of the vinyl tape. Thus, as the welder travels over the to-be-repaired seam, the hot air substantially uniformly impinges on the vinyl tape to effect a substantially uniform weld.

While alternative heated air jet devices may be substituted, the presently preferred automatic hot air welder is the WEG 18PR model from Wegener North America, Inc. of Burr Ridge, Il. Substituting a different hot air welder will require some calibration of heat and "creep speed" settings, but the settings which will accomplish the required thermal welding between fabric and vinyl tape will be apparent with little effort.

When using the WEB 18PR model welder, one sets the heat setting to between "6" and "7" and sets the speed setting to between "4 ½" and "5." When using a 2-3/4 vinyl laminate tape satisfying mil spec C-43006, Type 2, Class 2, these

settings will result in an optimum heat weld to effect an ideally sealed seam when repairing a standard weight, polyester fiber fabric military tent or vehicle cover (Mil C-44103 and C-20696 respectively).

It is quite important to realize that it is crucial to adequately clean the fabric into contact with which the vinyl tape will come during the repair process. The present process was attempted under many varying conditions, and always failed, until the present inventor discovered that, no matter the condition of the tent, the fabric must be "prepared" for the welding operation. Simply wiping the affected fabric with laquer thinner will suffice. Such wiping should clearly continue until any visible dirt, grease, etc. is removed, but, even if none is present, the process must still be undertaken, albeit for little more than a few wipes over the affected area. Once the surfaces have been prepared, the vinyl tape (approximately three inches in width, for most applications) is lain along and centered on the to-be-repaired seam (or placed on a dispensing roller which gives out the tape as the welder travels along the surface), and the hot air welder is activated to move along the desired path and weld the tape to the underlying fabric.

A user of the present method must be alert to charring of tape or fabric on the one hand, and inadequate welding on the other. Minor adjustments to heat and/or speed settings may be required as ambient temperature or other conditions may slightly adversely affect otherwise appropriate settings and methods. Minimal experience with the present method will be required to recognize and correct such problems.

In addition to heat and speed settings of the welder used, it is also important to insure that the to-be-repaired item is lain flat on a flat working surface. Otherwise, ripples in the fabric or vinyl tape will result in the materials coming closer or farther away from the hot air welder nozzle than is necessary to achieve an optimum weld.

Although the invention has been described with reference to specific embodiments, this description is not meant to be construed in a limited sense. Various modifications of the disclosed embodiments, as well as alternative embodiments of the inventions will become apparent to persons skilled in the art upon the reference to the description of the invention. It is, therefore, contemplated that the appended claims will cover such modifications that fall within the scope of the invention.

I claim:

1. A method for repairing a synthetic fiber fabric item with sewn seams comprising the steps of:

placing that portion of a to-be-repaired item as includes a to-be-treated seam on a working surface, and aligning said seam along a welder path;

selecting a hot air welder;

selecting elongate, synthetic tape of sufficient length to overlie said to-be-treated seam;

actuating and orienting said hot air welder to emit a hot air jet and moving said hot air welder over said to-be-repaired item along said welder path to effect a thermal welding of said tape to the fabric of said to-be-repaired item, and aligning said tape along and substantially centered on said seam no later than to reside along said seam as said welder moves along said welder path whereby said tape is thermally welded to said fabric of said to-be-repaired item.

ABSTRACT

The invention is of a method for repairing and water-proofing leaking seams of tents, tarps, vehicle covers, etc. when manufactured of synthetic fiber fabrics. The process involves heat welding vinyl tape along seams of such to-be-repaired items using a self-propelled hot air welder.